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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,005	03/07/2005	Luigi Agarossi	IT 020027	2248

24737 7590 10/27/2008
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER

HERRERA, DIEGO D

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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10/27/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/527,005	Applicant(s) AGAROSS ET AL.	
	Examiner DIEGO HERRERA	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8-10 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 2-7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

Claims 2-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Objections

Claim 3 is objected to because of the following informalities: because misspelling the word "rate". Appropriate correction is required.

Claim 14 is objected to because of the following informalities: because is dependent on a claim 11 that is cancelled. Appropriate correction is required.

Response to Amendment

Claim 11-12 are cancelled.

Claims 1-6, and 13 have been amended.

Response to Arguments

Applicant's arguments with respect to claims 1, 8-10, and 13-20 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 8, and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over “WIND-FLEX: A flexible radio interface architecture for short-range high-speed wireless networking” (WIND-FLEX white paper V32.Doc, 20 May 2002, pages 1-12, referred herein after as Wind), and in view of Hyll (US 6005893).

Regarding claim 1. Wind discloses a method for supervising an OFDM wireless communication system including a MAC layer and a PHY layer, said PHY layer including a supervisor unit (page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer), the

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method comprising the acts of:

inputting into the supervisor unit a first set of input data comprising a target bit rate

(Target_Rate) and a target bit error rate (Target_BER) (Page 7, "Medium Access Control Layer", Wind teaches QoS parameters including that of BER);

processing by the supervisor unit the first set of input data (Page 7, "Medium Access Control Layer", Wind teaches QoS parameters including that of BER);

outputting from the supervisor unit a code rate C , a set of codes $M=\{M_i\}$ for specifying constellations for sub-channels (Page 7, "Medium Access Control Layer", Wind teaches QoS parameters including that of BER and constellation schemes); and

however, Wind doesn't disclose outputting actual QoS data to the MAC layer including outputting an actual rate actually determined for a current transmission and an actual bit error rate (BER) actually determined for the current transmission, nevertheless, the examiner maintains this is well known in the art at the time the invention was made and taught by Hyll (abstract, title, col. 2 lines: 9-67—col. 3 lines: 58, col. 4 lines: 60—col. 5 lines: 60, col. 7 lines: 10-62, col. 8 lines: 5-16, Hyll teaches bit error rate determined and constellation schemes, and adjusting for transmission). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to specifically include teachings found in Hyll for purposes of to ensure that the bit allocation is optimal per sub-channel.

Consider claim 8. The method of claim 1, further comprising the acts of:

feeding a second set of input data including channel power transfer functions $H=\{$

$I H_i F_2\}$: (index i refers to the i th sub-carrier) from the PHY layer to the supervisor unit

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(page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer);

processing the first and second set of input data for minimizing processing and

transmission power in the OFDM wireless communication system (abstract, title, col. 2

lines: 9-67—col. 3 lines: 58, col. 4 lines: 60—col. 5 lines: 60, col. 7 lines: 10-62, col. 8

lines: 5-16, Hyll teaches bit error rate determined and constellation schemes, and

adjusting for transmission); and

outputting N, modulation, coding parameters and transmission power parameters to the

PHY layer (page 5 title: baseband architecture, Wind teaches OFDM and supervisor

unit for real-time system optimization including a MAC layer).

Consider claim 9. The method of claim 8, wherein the feeding of the first set of input data comprises feeding a Max_Delay (max tolerable delay) (abstract, title, col. 2 lines: 9-67—col. 3 lines: 58, col. 4 lines: 60—col. 5 lines: 60, col. 7 lines: 10-62, col. 8 lines: 5-16, Hyll teaches bit error rate determined and constellation schemes, and adjusting for transmission).

Consider claim 10. The method of claim 8, wherein the outputting of coding parameters and transmission power parameters to the PHY layer comprises: N: IFFT/FFT length (col. 3 lines: 5-28); the C: Code rate data; B: Block length data; n: data as to the number of decoding iterations; the $M=\{M_i\}$: data as to a set of codes to specify different constellations adopted for different sub-channels wherein $M_i:0$ means that the i th sub-channel is OFF, and $P=\{P_i\}$: data as to a set of different transmission powers adopted for the different sub-channels, wherein $P_i:0$ means that the i th sub-channel is in

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an OFF state (abstract, title, col. 2 lines: 9-67—col. 3 lines: 58, col. 4 lines: 60—col. 5 lines: 60, col. 7 lines: 10-62, col. 8 lines: 5-16, Hyll teaches bit error rate determined and constellation schemes, and adjusting for transmission).

Consider claim 13. The method of claim 1, wherein the MAC layer requests a feedback specifying a Feedback mode, where one bit information is used to specify if MAC is interested to have feedback information on a current maximum available rate or a minimum available BER, and specifying a Service_mode, where one bit data is used to specify if MAC QoS requirements refers to a Rate guaranteed service or to a BER guaranteed service (col. 7 lines: 11-col. 8 lines: 32).

Consider claim 14. The method of claim 11, wherein the outputting act further comprises the act of outputting:

a MAC return comprising a Max available Rate (maximum available rate for a current channel condition as far as BER and tolerable delay requirements are concerned); or
a Min available BER (minimum available BER for the current channel condition as far as rate and tolerable delay requirements are concerned) after the processing act (abstract, title, col. 2 lines: 9-67—col. 3 lines: 58, col. 4 lines: 60—col. 5 lines: 60, col. 7 lines: 10-62, col. 8 lines: 5-16, Hyll teaches bit error rate determined and constellation schemes, and adjusting for transmission).

Consider claim 15. The method of claim 1, wherein the processing act is for minimizing processing and transmission power in a wireless communication network system and further comprises the act of finding N, the M/C couple and ON sub-channels required to fit the Target_Rate and the Target_BER requirements with a minimum power, given a

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current channel condition (col. 7 lines: 11-col. 8 lines: 32)..

Consider claim 16. The method of claim 15, wherein, in case channel conditions prevent achieving a required QoS even with a maximum available transmission power, a supervisor algorithm finds an M/C couple, a number and a position of ON sub-channels required to get a maximum rate compatible with the Target_BER requirement, given the current channel condition and a maximum power allowed by system specifications, or a minimum BER compatible with the Target_Rate, given the current channel condition and the maximum power allowed by the system specifications (abstract, title, col. 2 lines: 9-67—col. 3 lines: 58, col. 4 lines: 60—col. 5 lines: 60, col. 7 lines: 10-62, col. 8 lines: 5-16, Hyll teaches bit error rate determined and constellation schemes, and adjusting for transmission).

Consider claim 17. An OFDM wireless communication system including a MAC layer and a PHY layer, said PHY layer including the supervisor unit, wherein the supervisor unit is configured to perform the method of claim 1 (page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer).

Consider claim 18. A supervisor unit in the OFDM wireless communication network system including the MAC layer and the PHY layer including said supervisor unit, wherein the supervisor unit is configured to perform the method of claim 1 (page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer).

Consider claim 19. An interface unit in the OFDM wireless communication system

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including the MAC layer and the PHY layer, said PHY layer including a supervisor unit (page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer), said interface being located between the supervisor unit and the MAC layer, wherein said interface unit is configured to perform the method of claim 1 (page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer).

Consider claim 20. A computer-readable medium containing a computer-readable program for use in the OFDM wireless communication system including the MAC layer and the PHY layer, said PHY layer including a supervisor unit, wherein the program, when implemented in the supervisor and run in the supervisor unit, causes the supervisor to perform the method of claim 1 (page 5 title: baseband architecture, Wind teaches OFDM and supervisor unit for real-time system optimization including a MAC layer).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DIEGO HERRERA whose telephone number is (571)272-0907. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Diego Herrera/
Examiner, Art Unit 2617

/Lester Kincaid/
Supervisory Patent Examiner, Art Unit 2617